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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,324	03/05/2001	Iftekhar Hussain	GDC-128	4442
24283	7590	09/28/2004	EXAMINER	
PATTON BOGGS 1660 LINCOLN ST SUITE 2050 DENVER, CO 80264			TANG, KAREN C	
			ART UNIT	PAPER NUMBER
			2662	

DATE MAILED: 09/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	09/744,324	HUSSAIN ET AL.	
	Examiner	Art Unit	
	Karen C Tang	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/11/2001</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-5, and 8-15 are rejected under 35 U.S.C. 103(a) as being as being anticipated by Choudhury et al. hereinafter Choudhury (US 5,541,912) in view of Silberschatz et.al hereinafter Siberschatz (US 6,556,578).

Referring to Claims 1 and 12, Choudhury discloses a dynamic buffer management method for managing multiple ATM queues in a shared buffer refer to Col 1, Line 56 to 64 and Col 9, Line 14-16.

Comprising:

a) creating a queue for each virtual connection at the time the virtual connection is set up refer to Col 1, Line 65-67 and Col 2, Line 3-9.

b) setting a minimum queue threshold for each queue at the time it is created based on the service category of the virtual connection for which the queue was created refer to Col 2, Line 10-15.

c) dynamically adjusting the queue threshold for each queue based on the minimum queue threshold and the amount of unused shared buffer space refer to Col 4, Line 38 – 44.

Choudhury does not disclose that the threshold is the minimum threshold for the queue length.

Silberschatz teaches that minimum thresholds for the queue length refer to Col 4, Line 26-35.

At the time of the invention, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Choudhury with the teaching of Silberschatz. One of ordinary skill in the art would have been motivated to do this because by setting up the threshold for queue length, it can reduce the amount of memory needed for the connection and enable more memory for other connection.

Referring to Claim 8, Choudhury discloses a dynamic buffer management method for managing multiple ATM queues in a shared buffer refer to Col 1, Line 56 to 64.

a) creating a queue for each virtual connection at the time the virtual connection is set up refer to Col 1, Line 65-67 and Col 2, Line 3-9 and Col 9, Line 14-16.

b) setting a queue threshold T_{fi} for each queue at the time it is created based on the service category of the virtual connection for which the queue was created refer to Col 5, Line 1-14.

c) dynamically adjusting the queue threshold for each queue based on the queue threshold and the amount of unused shared buffer space refer to Col 5, Line 1-14, Equation 1 in Col 5, Line 11-14, and Col 9, Line 14-16.

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Choudhury does not expressly disclose that the threshold is the minimum threshold for the queue length.

Silberschatz teaches that a minimum threshold for the queue length refer to Col 4, Line 26-35.

At the time of the invention, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Choudhury with the teaching of Siberschatz. One of ordinary skill in the art would have been motivated to do this because by setting up the threshold for queue length, it can provide more connection as needed.

Referring to Claims 2 and 13, Choudhury discloses said step of adjusting includes increasing the minimum queue threshold by a fractional amount of the unused shared buffer space refer to Col 5, Line 4-14.

Referring to Claims 3 and 14, Choudhury discloses a fractional amount which is added the minimum queue threshold is determined by the service category of the virtual connection for which the queue was created refer to Col 5, Line 4, and Col 5, Line 14.

Referring to Claims 4 and 15, Choudhury discloses maximum permitted queue occupancy for each queue at the time it is created based on the service category of the virtual connection for which the queue was created refer to Col 5, Line 33 to 48 and Col 4, Line 23 -26.

Referring to Claim 5, Choudhury discloses the maximum permitted occupancy is a fractional amount of the dynamically adjusted queue threshold when the buffer is empty refer to Col 4, Line 23 -26.

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Referring to Claim 9, Choudhury discloses that $\gamma = 2y$ where y is chosen based on the service category of the connection refer to Col 8, Line 4-7 and Col 9, Line 14-16.

Referring to Claim 10, Choudhury discloses setting a maximum permitted queue occupancy Q_{\max} for each queue at the time it is created based on the formula refer to Col 8, Line 4-7, and Col 9, Line 14-16.

Referring to Claim 11, Choudhury discloses:

for CBR service and for VBR-rt service $y = \left\lceil \log_2 \frac{\alpha}{4B} \right\rceil$ and $T_F = \tau_{PCR} \cdot PCR$;
 for VBR-nrt service $y = -4$ and $T_F = b_e$.
 for ABR service $y = -4$ and $T_F = TBE$; and
 for UBR service $y = 0$ and $T_F = 0$.

refer to Col 9, Line 14-16.

Claims 6, 7 and 16 are rejected under 35 U.S.C. 103(a) as being as being anticipated by Choudhury et al. hereinafter Choudhury (US 5,541,912) in view of Silberschatz et.al hereinafter Siberschatz (US 6,556,578) and in further view of Hughes et.al hereinafter Hughes (US 6,535,484).

Referring to Claims 6, and 16, Choudhury discloses setting an occupancy for each queue at the time it is created based on the service category of the virtual connection for which the queue was created refer to Col 6, Line 5.

Choudhury does not disclose setting a minimum occupancy.

Hughes teaches setting minimum buffer occupancy refer to Col 1, Line 63-67.

At the time of the invention, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Choudhury with the teaching of Hughes. One of ordinary skill in the art would have been motivated to do this because it by setting up minimum buffer occupancy, it is easier to managing the oversubscription of a common communication resources by a large number of traffic flows, such as ATM connections.

Referring to Claim 7, Choudhury does not expressly disclose the minimum queue occupancy is based on the number of active backlogged connections.

Hughes discloses that the minimum queue occupancy is based on the number of active backlogged connection refer to Col 1, Line 63-67 and Col 2, Lines 20-35.

At the time of the invention, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Choudhury with the teaching of Hughes. One of ordinary skill in the art would have been motivated to do this because it by setting up minimum buffer occupancy based on the number of active backlogged connections, in order to accommodate large number of connection, each connection is given less memory.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US 5,901,139 (Shinohara discloses ATM cell buffer managing system in ATM node equipment)
- US 6,400,684 (Benmohamed et al. discloses a flow control method using a dynamic major reduction factor)
- US 6,724,776 (Jeffries. discloses a method and system for providing optimal discard fraction in the ATM system)

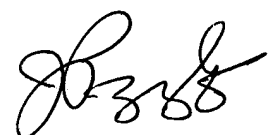
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen C Tang whose telephone number is (571)272-3116. The examiner can normally be reached on M-F 7 - 3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571)272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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